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ABSTRACT

The study attempts to measure the effects of self-esteem and face-to-face interaction on a person's giving behavior (altruism). Seventy-two introductory psychology students were paired on a task which required that one of each pair become "indebted" to the other. Their roles were then reversed, and data was collected to see if the debtor-turned-creditor gave back more than he had received (reciprocal altruism). The theoretical bases, procedures, and variable manipulations are described in detail. A major finding of the study is the negative correlation between self-esteem and reciprocation. That is, persons with high self-esteem reciprocated less than those with lower self-esteem. Two possible interpretations are offered. It is also reported that, where subjects anticipated face-to-face confrontation with the other member of their pair, they were more likely to reciprocate. Overall, a cynical interpretation of this finding is favored by the authors: in the absence of a threat to punishment, one doesn't repay his debts unless he must face his creditor. (TL)

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Reciprocal Altruism: the effect of self-esteem and anticipation of face-to-face interaction on reciprocation.

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Krebs (1970) has noted the resurgence of research on altruism. It is no accident that interest in this topic waned about the time Charles Darwin was refining the theory of evolution. At the turn of the century, psychologists interested in altruism posited its existence as an instinct, along with scores of other instincts. For example, Heidbreder (1933) discusses the ideas of William James and William McDougall, published in 1890 and 1908 respectively. This research-stifling enumeration of instincts eventually gave way to the onslaught of John B. Watson's behaviorism. Psychologists began the development of a model of man which was based on animal research; a model which was, within the Zeitgeist which prevailed at this time, materialistic and selfish.

Within social psychology today, the selfish model of man still dominates as epitomized in the Social Psychology of groups by Thibaut and Kelley (1961). The model of the human proposed by Thibaut and Kelley is contrary to traditional definitions of altruism because of their premise that humans will engage only in behaviors which "pay off". Altruism, within their theory, might be interpreted as individual differences in comparison level or as exogenous source of reward. If one admits such sources as reward in heaven, empirical research becomes very tricky indeed.

Thibaut and Kelley employ a model which permits the reward value of an act to vary across actors. If, however, we employ a model which equates reward values across actors (e.g. $10 has the same value to a pauper as to a millionaire) then results can be interpreted in terms of relative degrees of altruism.

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The present study was generated by the fundamental difference between these two way of conceptualizing reward value. The former model states that there are differences among people and thus implies that, among other individual differences, personality might be related to differences in apparent giving behavior. While the example given in conjunction with the latter model is absurd, one might find differences in giving among people of equal means. Thus, differences among paupers in their giving to others might be interpreted as differences in altruism.

The present study employs both (1) a measure of personality (self-esteem) and (2) subjects of nearly equal means (students from introductory psychology classes). This latter statement is more in the nature of an assumption than a reality. While college students are obviously not of equal means, we assume that the amount of money they might win in the present experiment (about $2.50) held the same value for all subjects.

The present study falls under Krebs' heading "the generation of debt and the norm of reciprocity" (p. 295). The following quotation taken from Krebs' article serves to clarify our experimental paradigm.

> The norm of reciprocity, as postulated by Gouldner (1960), prescribes that people should help those who have helped them, and that people should not injure those who have helped them. Research pertaining to the effect of the norm of reciprocity is thought to relate to the altruism-eliciting capacity of recipients because in the prototypical experimental situation it is the generosity of the potential (future) recipient that is varied. The fact that the generosity of the recipient is an attribute that he acquired in the role of benefactor does not alter the fact that the altruism-eliciting variable lies with the recipient. The characteristic of the recipient of importance here relates to his role as creditor.

The present experiment attempts to place the "future recipient" (a confederate) in the role of a creditor. The "altruism-eliciting capacity" of the confederate is varied in a moderately ambiguous judgment setting in which correct judgments win money. In the first phase of the experiment, the confederate, according to

a prearranged schedule, decides whether his own judgment or the judgment of the subject will be considered for the winning of money. The number of times the confederate accepts the judgment for the subject (three, five, or seven out of ten trials), constitutes one independent variable of the study.

In addition, the opportunity for the confederate and the subject to win money depends on certain rules of the judgment game. Under one set of rules, the confederate's acceptance of the subject's judgment means that only the subject can win if the judgment is correct; the confederate's choice of his own judgment means that only he can win. Under a second set of rules the confederate's acceptance of the subject's judgment means that both can win; however, the confederate's choice of his own judgment means only he can win. For a third set of rules the confederate's acceptance of the subject's judgment makes no difference for who wins; if the judgment of either the confederate or the subject is correct, both will win.

These two variables - the number of acceptances of the subject's judgment by the confederate and the three different rules of the game - were intended to manipulate the degree to which the subject would be placed in the confederate's debt. It was predicted that the amount of indebtedness generated by the manipulation would be linearly related to reciprocation (acceptance of the confederate's judgment by the subject) when the roles of the confederate and the subject were reversed.

A third independent variable, the expectation of face-to-face interaction, was varied because of its demonstrated role in social influence (Argyle, 1957; Deutsch & Gerard, 1955; Mouton, Blake & Olmstead, 1956; Raven, 1959). It was surmised that any effect of the manipulation of indebtedness would be enhanced when subjects expected face-to-face interaction following the experiment.

A fourth variable, self-esteem, was employed as a covariate. At least three theoretical formulations are relevant to the correlation between self-esteem and reciprocation as measured in this experiment.

Wiest (1965) has reiterated Heider's notion that balance theory applies only to persons who like themselves. It can be shown that definitions of balanced and unbalanced states are reversed when negative self-esteem is assumed. To demonstrate this assertion, the x in the p-o-x model must be the self-esteem of p (the subject); therefore, low self-esteem would be graphically displayed as a negative sign between p and x. The behavior of o (the confederate) toward p may then be displayed as a sign between o and x, and p's responses to o's behavior may be displayed as a sign between p and o. Under the assumption that p has high self-esteem (p+x), behavior on the part of o toward p will be reciprocated in kind. But when p is assumed to have low self-esteem (p-x), behavior on the part of o toward p will be reciprocated with its opposite. In the context of the present experiment, balance theory makes two kinds of predictions, one general and one specific to the amount which o gives p. The general prediction assumes that if o gives p anything at all, the ox relationship is positive. Holding the ox relationship constant in this way generates the prediction that people with negative self-esteem will reciprocate negatively and people with positive self-esteem will reciprocate positively; thus, a generally positive correlation between self-esteem and reciprocation.

In the present experiment, it is possible that p would perceive the ox relationship differently in each of the acceptance conditions. When o accepts only three of p's judgments, p might assign a negative value to the ox relationship when o accepts seven of p's judgments p might assign a positive value to the ox relationship, and when o accepts five of p's judgments, p might assign either a positive or a negative sign to the ox relationship. We feel that this latter sign is more likely to be positive than negative, since acceptance of five

of p's judgments is half of the total possible number, and might be seen by p as "playing the game fairly". When the sign of the ox relationship is allowed to vary in this way, the correlation between self-esteem and reciprocation depends upon the acceptance condition: In the three-acceptance condition, the correlation between reciprocation and self-esteem should be negative, but in the seven-acceptance condition the correlation between reciprocation and self-esteem should be positive.

To summarize, if p perceives <u>any</u> acceptance of his judgment on the part of o as indicative of a positive ox relationship, then balance theory predicts a generally positive correlation between self-esteem and reciprocation. If, on the other hand, three acceptances is perceived as indicative of a negative ox relationship, then balance theory predicts a negative correlation between self-esteem and reciprocation in this condition. If seven acceptances is perceived as indicative of a positive relationship, then balance theory predicts a positive correlation between self-esteem and reciprocation in this condition.

A second theoretical formulation is suggested by Kaufmann (1970), who refers to the use of aggression to restore self-esteem. In the present experiment, one might assume (1) that a lack of reciprocation is an aggressive act, and (2) that the only threat to the self-esteem of the subject is that in which the confederate accepts only three of the subject's judgments. If we further assume that only subjects with high self-esteem can be threatened, then we may conclude that subjects with high self-esteem will reciprocate less than will subjects with low self-esteem; thus, a negative correlation between self-esteem and reciprocation in the three-acceptance condition, and, assuming that five and seven acceptances are not threatening, no relationship between self-esteem and reciprocation in these two conditions.

A third theory bears more directly on the fact that the present experiment involves a judgment skill. Hovland, Janis, and Kelley (1953) have suggested

that people with high self-esteem are simply more confident. If the subject is confident of his own judgment, little if any reciprocation would occur, since reciprocation is measured by the number of times the subject accepts the judgment of the confederate; hence, the prediction of a negative correlation between self-esteem and reciprocation. According to this theory, such a negative correlation might be constant across experimental conditions.

In sum, balance theory and the "self-confidence" theory lead to conflicting general predictions; balance theory predicts a generally positive correlation between self-esteem and reciprocation and self-confidence theory predicts a generally negative correlation between self-esteem and reciprocation. Since the present experiment consists of judgment paradigm, the latter prediction seems more reasonable.

In addition to these general predictions, balance theory and the "threat to self-esteem" theory make predictions specific to the acceptance conditions. Balance theory predicts a negative correlation between self-esteem and reciprocation in the three-acceptance condition, and a positive correlation in the seven-acceptance condition. The threat to self-esteem theory predicts a negative correlation between self-esteem and reciprocation in the three-acceptance condition, and no correlation in the five and seven-acceptance conditions. There seems to be no clear grounds for making a choice between the two specific predictions. It should be made clear that while the present experiment might lend support to one of the two general predictions and one of the two specific predictions, the general and specific predictions could also work in combination.

Method

Subjects

Seventy five subjects were recruited from introdutory psychology classes in exchange for credit toward their course grade. Three subjects failed to understand

the instructions and were deleted from the study: data are reported on seventy-two subjects, four each in an 18-celled design.

Design

A 3 X 3 X 2 factorial design was used. The two-level factor consisted of a manipulation of the subject's expectation about face-to-face interaction with the confederate following the experiment (confrontation). Each of the three-level factors attempted to manipulate the indebtedness of the subject to the confederate (these two variables are called acceptance and indebtedness). A measure of self-esteem constituted a covariate of the study.

Procedure

The experiment consisted of (1) an introduction and pretraining period, (2) a phase in which the independent variables were manipulated and (3) a phase in which the dependent variable was measured.

Subjects were told that their job in the experiment would be to estimate the number of dots contained in patterns which would be projected onto a screen. These patterns consisted of between fifty and three hundred dots. In order to encourage their best performance, subjects were told that they would earn twenty-five cents for each estimate made which was within fifteen dots of the true number. It was further explained that since there were a large number of trials in the experiment it was possible to earn up to five dollars and that most subjects earned about two dollars and fifty cents.

Subjects were then asked to move to a four by twelve foot table which was partitioned into three cubicles. The confederate was seated in the center cubical, between the subject and the experimenter.

The subjects were then told that they would be allowed five practice trials. It was explained that no money would be awarded for performance during the practice

trials as the practice trials were to acquaint the subjects with the experimental task and the procedure. The first slide was then exposed for seven seconds and the subjects were reminded that, as stated on an eight by eleven sheet of paper posted in their cubicle, the true number of dots was always between fifty and three hundred. Subjects were asked to write their estimate on one of the three by five slips of paper provided within their cubicle. The slip was then passed to the experimenter through small slots at the bottom of the partitions and the estimates were recorded by the experimenter. This procedure was followed for the remaining four practice trials. After a delay of approximately one minute the subjects were told that they both would have earned money on the practice trials.

The confederate was told that since he was the subject seated nearest to the experimenter he was subject number one. It was explained that subject number one would be allowed to choose between the two estimates and the one which he chose would be recorded. At this time it was pointed out that, "it is evident that subject number one is in a position of power and he is likely to win more money than subject number two, but this arrangement is unfortunately necessary so that we can test certain experimental hypotheses." A new slide was then exposed. Subject number one was asked to pass his written estimate to the experimenter for recording. Subject number two was asked to read his estimate aloud and pass the written estimate to subject number one who would decide which estimate was to be recorded. The subjects were then requested to record their own estimates and the decision of subject number one on "data sheets" which were furnished in the cubicles.

Indebtedness: High indebtedness was induced by explaining to the subjects that if subject number one (the confederate) chose to have the estimate of subject

number two recorded, only subject number two could earn 25¢ on that trial. It was further explained that should subject number one choose to record his own estimate only subject number one could earn 25¢. In the medium indebtedness condition it was explained that should subject number one choose to have the estimate of subject number two recorded both could earn 25¢ each but that if subject number one chose his own estimate only he could earn 25¢. In the low indebtedness condition the subjects were told that both could earn money regardless of which estimate was chosen for recording by subject number one.

Acceptance: The three levels of acceptance were manipulated through the confederate according to a prearranged schedule. A script containing both the confederate's estimates and a schedule for acceptance or non-acceptance of the subject's estimate for each trial had been passed to the confederate during the pretraining trials. Subject number two's estimate was always accepted on the first trial; the balance of acceptances had been predetermined randomly. The confederate accepted three, five or seven of the ten estimates made by subject number two.

The subjects were then asked to pick up their data sheets and exchange seats, avoiding conversation during the process. Subjects were told "the person who was subject number two is now subject number one". The person next to me, the new subject number one, now holds the position of greater power. That is, he will be allowed to compare the estimates of both subjects and decide which one he wishes to record." At this time it was explained that in the next ten trials the result of subjects number one's choosing his own estimates would be that he only could earn money while his choosing the estimate of number two would allow both subjects to earn money. Data for the dependent variable - number of acceptances of the confederate's judgment by the subject - were obtained in these ten trials.

Confrontation: The expectation of face-to-face interaction or no interaction between the subject and the confederate was introduced prior to the last ten trials. The expectation of interaction was induced by stating: "As I said, there were ten trials left in the experiment. Afterward, we are going to give you five minutes to interact with each other and then we are going to ask you to rate each other on a number of personality dimensions relevant to decision-making behavior in groups. The interaction will be completely unstructured; that is, you will be able to discuss anything you like, but presumably you will talk about issues that will help you make valid and useful evaluation of each other."

The impression that the confederate was enrolled in an introductory psychology class different from the class attended by the real subject had been created in the introduction to the experiment. To bring about the expectation of no face-to-face interaction half the subjects were told: "As I said, there are ten trials left in the experiment. However, I hope that the subject from section A (the confederate) remembers that he is obligated to stay and participate in a second experiment as part of the requirements of his course. I will usher him across the hall to this second experiment as soon as we are finished with the next ten trials. The subject from section B will at that time be free to leave."

After the final ten trials the subject was asked to complete a thirty item scale measuring self-esteem. The subject was then debriefed and sworn to secrecy.

The measure of self-esteem employed in this experiment was developed by Stanley Rickard. Reliability and validity data were gathered on an independent sample of 25 subjects from introductory psychology courses. The Rickard Self-Esteem Scale (RSES) correlates .63 with the Coopersmith (1967) Self-Esteem Inventory (CSEI) and has a test-retest reliability of .84. The corresponding test-retest reliability for the CSEI was .91. The time between administration of these tests was six weeks.

Results

The experimental manipulations were not generally successful in producing statistically reliable effects upon reciprocation. Since none of the independent variables contributed significantly to variation in the dependent variable, neither the means nor the summary analysis of variance for the overall experimental design are presented.

However, self-esteem is significantly related to reciprocation ($r = -.38$). When self-esteem is included as a covariate, the effect of the expectation of face-to-face interaction (confrontation) becomes significant; the mean number of reciprocations was 4.72 and 4.05 when subjects did and did not expect face-to-face interaction respectively. The summary analysis of covariance is presented in Table 1.

Further understanding of the confrontation variable is obtained by viewing its effects across the acceptance variable. Table 2 presents the mean number of reciprocations for this analysis. While the interaction between confrontation and acceptance failed to attain significance ($p = .09$ in the analysis of covariance), there was a significant linear effect of acceptance within the condition in which subjects expected to confront the confederate following the experiment; the obtained F-ratio was 5.84 and $F_{.05}$ (1, 54) = 4.06.

Finally, while sex was not a significant covariate, males were found to be more variable in their reciprocation than females; the F-ratio of their respective variances was ~~4.19~~ 2.66 and $F_{.01}$ (44, 28) = 2.35.

Discussion and Conclusions

A major finding of the present study was the negative correlation between self-esteem and reciprocation. When this relationship is controlled for, it becomes clear that subjects who expected face-to-face confrontation

reciprocate more than subjects who do not expect such confrontation. In addition, subjects will reciprocate more when they are given more only when they believe they will interact with the confederate following the experiment.

The model to which we have adhered in the above interpretation assumes that self-esteem is a durable personality attribute unchanged by the experiment. However, since self-esteem was measured following the experiment, at least two alternative causal models are plausible.

One alternative causal model would hold that self-esteem should be a dependent variable. However, when the data are analyzed in this way, none of the relationships approaches significance (largest F-ratio is 1.38). Furthermore, when reciprocation is employed as a covariate in this analysis the largest F-ratio obtained is 2.17 (df = 2,53). This, does not eliminate the possibility that self-esteem is the appropriate dependent variable, but only indicates that the independent variables of the present study do not account for the variations in self-esteem.

A second causal model would hold that the experimental manipulations affected the relationship between reciprocation and self-esteem. If this interpretation were viable, one would expect differences in the correlation between reciprocation and self-esteem among the 18 cells of the design. Such differences do not exist (see, for example, Table 3).

The results of the study tend to shed doubt on the idea that humans are generally altruistic. Of course, when one examines the data closely, great individual differences may be found. Some subjects do give more than they receive. Thus, these data do not contradict the notion that individual acts of altruism may occur.

At first glance, the negative relationship between self-esteem and reciprocation might lead to a cynical conclusion. To some the interpretation that people with high self-esteem tend to reciprocate less than people with lower self-esteem

makes even more questionable our classic notions about motivation for altruistic acts. Classically the altruistic person is seen as one who is unconcerned with self-gain. Such a lack of concern might be the result of a high level of self-esteem, such that self-gain is no longer necessary. The present study tends to question such an assertion.

Since, in the present study, reciprocation is measured by the number of times the subject accepted the confederate's judgment, a less cynical interpretation, and one which is consistent with the experimental paradigm, is that people with high self-esteem are confident in their own judgment and hence will be less likely to defer to the judgment of another.

Reciprocation, since it involves payment of a debt, "may fall outside the range of altruistic behavior. Behavior which repays more than it owes.... on the other hand, seems altrustic" (p. 295). In the present study, behavior which repaid more than it owed occurred, on the average, in the low acceptance condition. Here, the confederate accepted three of the subjects' judgments and was repaid with four. While this may be considered altruistic at first glance, another interpretation seems more consistent with the experimental task. When the confederate accepts only three of the subject's judgments the subject may infer that the confederate has confidence in his own judgment and, without evidence to the contrary, the subject might be willing to defer to the judgment of the confederate when their roles as benefactor and recipient are reversed. The opposite is true when the confederate accepts seven of the subject's judgments. Here, the subject may feel that the confederate lacks self confidence and becomes less willing to defer to the confederate when their roles are reversed.

It seems quite possible to view the results of the present study either as shedding additional light on altruistic behavior, or as simply showing how human's make judgments in social situations. If this study does bear implications concerning motivation for altruistic acts, then such implications seem to support a

cynical point of view. One result which does lead to a cynical interpretation is the affect of expectation of face-to-face interaction on reciprocation. It is clear that subjects feel more inclined to reciprocate when they must confront the confederate following the experiment. In other words, in the absence of a threat of punishment, one doesn't repay debts unless he must face his creditor.

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Table 1. Summary analysis of covariance on the Subjects' acceptance of the confederate's judgments. Self-esteem is the covariate.

Source	SS	df	MS	F	
Regression	17.16	1	17.16	8.98	$p < .01$
Indeptedness (I)	6.10	2	3.05	1.60	
Confrontation (C)	9.36	1	9.36	4.90	$p < .05$
Acceptance (A)	6.39	2	3.20	1.67	
IC	4.16	2	2.08	1.09	
IA	1.96	4	0.49	0.26	
CA	9.65	2	4.83	2.53	
ICA	2.50	4	0.62	0.33	
Error	101.34	53	1.91		

Table 2. Mean number of acceptances of the confederate's judgment by the subject (reciprocation).

Expected face-to-face interaction	Acceptance 3/10	5/10	7/10	overall
Yes	3.91	4.92	5.33	4.72
No	4.16	3.75	4.25	4.05
Overall	4.04	4.33	4.79	

Table 3. Correlations between self-esteem and the subjects' acceptance of the confederate's judgment (reciprocation).

Expected face-to-face interaction	Confederate Acceptance 3/10	5/10	7/10	overall
Yes	-.57	-.48	-.39	-.48
No	-.52	-.63	-.12	-.44
Overall	-.54	-.56	-.26	